

ABSTRACT

BACK GROUND:

The etiological role of bacteria is established in periodontal disease. *Aggregatibacter actinomycetemcomitans*, *Porphyromonas gingivalis*, *Prevotella intermedia*, *Treponema denticola* are more commonly associated with destructive periodontal disease. Human saliva is a reservoir of micro-organisms derived from various niches of oral cavity. Molecular analysis of salivary sample allows evaluation of levels of microbes. Miswak is a chewing stick obtained from the roots and branches of a particular tree called the *Salvadora persica*. Several studies revealed that when used correctly, Miswak can have a positive impact on oral hygiene.

AIM:

To compare the salivary microbial levels of *Porphyromonas gingivalis*, *Treponema denticola*, *Prevotella intermedia* and *Aggregatibacter actinomycetemcomitans* between habitual Miswak stick users and regular toothbrush users using polymerase chain reaction technique and to assess the relationship between salivary bacterial levels and periodontal status.

MATERIALS AND METHODS:

A total of 50 subjects were included in the study. Study group consisted of 25 subjects who used only Miswak stick as their oral hygiene aid and control group consisted of 25 subjects who used tooth brush as their oral hygiene aid. Microbial levels of *Porphyromonas gingivalis*, *Treponema denticola*, *Prevotella intermedia* and *Aggregatibacter actinomycetemcomitans* were assessed in salivary samples by quantitative PCR technique and compared between the two groups. Furthermore the clinical parameters, plaque index, sulcus bleeding index, probing pocket depth and clinical attachment level were compared between the two groups.

RESULTS

The mean plaque index score of Miswak users was 1.14 ± 0.63 and tooth brush users was 0.74 ± 0.23 ($p=0.005$). The mean sulcus bleeding index score for Miswak users was 1.70 ± 1.00 and tooth brush users was 0.93 ± 0.27 ($p=0.001$). The median bacterial count of *P.gingivalis* among Miswak users was 9812 and the Tooth brush users was 7894 and the difference was statistically significant ($p=0.046$). The median bacterial count of *T.denticola* among Miswak users was 1900 and the Tooth brush users was 3793 and the difference was statistically not significant ($p=0.304$). The median bacterial count of *A. actinomycetemcomitans* among Miswak users was 3762 and the Tooth brush users was 3498 and the difference was statistically not significant ($p=0.816$). The median bacterial count of *P.intermedia* among Miswak users was 3450 and the Tooth brush users was 4352 and the difference was statistically not significant ($p=0.839$).

CONCLUSION

Within the limits of the present study, it can be concluded that tooth brush is better than Miswak stick in maintaining oral hygiene. Tooth brush users had significantly lower counts of *P.gingivalis*. Miswak has some chemical constituents that inhibits *T. denticola* and *P.intermedia*. Furthermore, clinical studies comparing clinical and microbiological parameters in larger samples are required. Invitro studies to explore the phytochemical constituents of Miswak is necessary.